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新的自调整多叉树 RFID 防碰撞算法的 FPGA 实现

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摘 要： 标签碰撞是射频识别（Radio Frequency Identification，RFID）系统中的关键问题之一，直接影响系统的效率.针对标签碰撞问题，在研究现阶段防碰撞算法的基础上提出了一种新的自调整多叉树 RFID 防碰撞算法，简要介绍了新算法的基本思想和流程.设计了基于 FPGA 的新算法实现方案，并对关键模块功能进行了仿真验证.仿真结果表明了新算法的优越性和可行性.

关键词： 射频识别；防碰撞算法；现场可编程门阵列；堆栈

Implementation of the New Anti-collision Algorithm Based on Adjustive Multi-tree for RFID on FPGA

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Abstract：Tag collision is one of the key problem of RFID system, which directly affects the efficiency of the system. For tag collision problem, a new anti-collision algorithm based on adjustive multi-tree was proposed on the basic of studying on present anti-collision algorithm. In this paper, the basic ideas and processes of new anti-collision algorithm were introduced. Then, a new implementation scheme of new anti-collision algorithm based on FPGA was designed and the simulation to the function of the key modules were carried on. The simulation results show the superiority and feasibility of the new algorithm.

Key words：RFID; anti-collision algorithm; FPGA; LIFO

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